

Application No.: 10/714,090  
Amendment dated: December 3, 2006  
Reply to Office Action of September 6, 2006  
Attorney Docket No.: 22176.25 (ITW-14378)

b.) Remarks

Claims 1-12 and 14-20 are pending in this application. Claims 1-9 and 14-20 are withdrawn from consideration. Claim 10 has been amended in various particulars as indicated hereinabove.

Turning first to the Office Action Summary Sheet, Claims 1-12 and 14-20 are pending in this application. Claims 1-9 and 14-20 are withdrawn from consideration. Claims 10-12 are rejected. Claim 10 is objected to. The drawings filed on September 22, 2005 are accepted.

Turning now to the merits:

Claim Objections

Claim 10 was objected to because of informalities. Claim 10 has been amended to correct the informalities. Specifically, the second occurrence of  $\text{CaF}_2$  has been deleted.

Rejection of Claims 10 and 12 Under 35 U.S.C. 102(b)

Claims 10 and 12 were rejected under 35 U.S.C. 102(b) over Ogawa et al. (U.S. Patent No. 5,861,605). The Office Action stated that the reference discloses a fluxed core wire with a core containing  $\text{Al}_2\text{O}_3$ ,  $\text{CaCO}_3$ ,  $\text{CaF}_2$ ,  $\text{MgO}$ ,  $\text{Na}_2\text{O}_3$  and other compounds and elements, a flux ratio that ranges from 23 to 25 wt % and combined amounts of  $\text{Al}_2\text{O}_3$  and  $\text{Na}_2\text{O}_3$  ranging from 6 to 20 wt %.

This rejection is respectfully traversed for the following reasons.

In order to be anticipatory under section 102(b), a single reference must disclose each and every element of the claimed invention<sup>1</sup>. Those elements must be either inherent or expressly disclosed<sup>2</sup> and they must be arranged as in the claim<sup>3</sup>. For anticipation,

1 In re Paulsen, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994)

2 Constant v. Advanced Micro-Devices, 7 USPQ2d 1057 (Fed. Cir. 1988)

3 Richardson v. Suzuki Motor Co., 9 USPQ2d 1913 (Fed. Cir. 1989)

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there must be no difference between the claimed invention and the references disclosed, as viewed by a person of ordinary skill in the field of the invention<sup>4</sup>.

The Ogawa patent discloses a high nitrogen flux cored welding wire for Cr-Ni type stainless steel. In addition to nitrogen and nitrogen compound, the flux taught in the Ogawa patent includes  $\text{TiO}_2$ ,  $\text{Al}_2\text{O}_3$ , metal fluoride,  $\text{ZrO}_2$  and metal carbonates. The amount of  $\text{Al}_2\text{O}_3$  recommended by Ogawa is in the range of 0.05 and 1.5 wt %. Table 7 shows flux compositions that include  $\text{TiO}_2$ ,  $\text{SiO}_2$ ,  $\text{ZrO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{Na}_2\text{O}_3$  and  $\text{K}_2\text{O}$ . The combined amounts of  $\text{Al}_2\text{O}_3$  and  $\text{Na}_2\text{O}_3$  range from 0.14 wt. % (comparative example No. 26) to 1.77 wt % (comparative example No. 27). Applicant's attorney carefully reviewed the Ogawa patent, but the combined amounts of  $\text{Al}_2\text{O}_3$  and  $\text{Na}_2\text{O}_3$  ranging from 6 to 20 wt%, as stated in the Office Action, could not be found in that patent. The Patent Office is asked to point out where in the Ogawa patent the quoted range could be found.

Thus the Ogawa patent does not disclose a core comprising one or more non-metallic compounds selected from the group of non-metallic compounds consisting of  $\text{Al}_2\text{O}_3$ ,  $\text{Na}_2\text{O}_3$ ,  $\text{MgCO}_3$ ,  $\text{MgAl}$ ,  $\text{CaF}_2$ ,  $\text{CaCO}_3$ ,  $\text{MgO}$  and combinations thereof, wherein the total percentage of one or more non-metallic compounds in the core composition ranges from about 1% Wt to about 30% Wt and wherein the non-metallic compounds are  $\text{Al}_2\text{O}_3$  and  $\text{Na}_2\text{O}_3$  with the total percentage of 14% Wt., as claimed in Applicant's Claim 10.

Furthermore, in contrast to Applicant's claimed tubular weld wire, which comprises a core formulated for submerged arc welding, there is nothing in the cited patent that addresses or contemplates this type of welding.

Therefore the Ogawa patent does not disclose a tubular weld wire comprising: a steel sheath encapsulating a core; the core formulated for submerged arc welding and comprising one or more non-metallic compounds selected from the group of non-metallic compounds consisting of  $\text{Al}_2\text{O}_3$ ,  $\text{Na}_2\text{O}_3$ ,  $\text{MgCO}_3$ ,  $\text{MgAl}$ ,  $\text{CaF}_2$ ,  $\text{CaCO}_3$ ,  $\text{MgO}$  and combinations thereof, wherein the total percentage of one or more non-metallic compounds in the core composition ranges from about 1% Wt to about 30% Wt and

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<sup>4</sup> *Scripps Clinic & Research Found. V. Genentech, Inc.*, 18 USPQ2d 1001 (Fed. Cir. 1991)

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wherein the non-metallic compounds are  $\text{Al}_2\text{O}_3$  and  $\text{Na}_2\text{O}_3$  with the total percentage of 14% Wt. Nor does the reference disclose the additional features set forth in Applicant's Claim 12.

Therefore, Claims 10 and 12 meet the requirements of 35 U.S.C. 102(b) in view of the Ogawa patent. Therefore, the 102(b) rejection of Claims 10 and 12 should be withdrawn, Claims 10 and 12 should now be allowed.

Rejection of Claim 11 Under 35 U.S.C. 103(a)

Claim 11 was rejected under 35 U.S.C. 103(a) over Ogawa et al. and further in view of Arikawa et al. (U.S. Patent No. 3,531,620).

This rejection is respectfully traversed for the following reasons.

For an obviousness rejection to be proper, the Patent Office must meet the burden of establishing a prima facie case of obviousness. The Patent Office must meet the burden of establishing that all elements of the invention are disclosed in the cited publications, which must have a suggestion, teaching or motivation for one of ordinary skill in the art to modify a reference or combined references.<sup>5</sup> The cited publications should explicitly provide a reasonable expectation of success, determined from the position of one of ordinary skill in the art at the time the invention was made.<sup>6</sup> As argued below, this burden has not been met.

The Ogawa patent does not disclose or suggest a core formulated for submerged arc welding nor a core comprising one or more non-metallic compounds selected from the group of non-metallic compounds consisting of  $\text{Al}_2\text{O}_3$ ,  $\text{Na}_2\text{O}_3$ ,  $\text{MgCO}_3$ ,  $\text{MgAl}$ ,  $\text{CaF}_2$ ,  $\text{CaCO}_3$ ,  $\text{MgO}$  and combinations thereof, wherein the total percentage of one or more non-metallic compounds in the core composition ranges from about 1% Wt to about 30% Wt and wherein the non-metallic compounds are  $\text{Al}_2\text{O}_3$  and  $\text{Na}_2\text{O}_3$  with the total percentage

<sup>5</sup> *In re Sang Su Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002).

<sup>6</sup> *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970);

*Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996);

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of 14%. Nor does the reference teach or suggest a core composition that further comprises compacted Fe, FeMg, and FeSi, as specified in Applicant's Claim 11.

The Arikawa patent discloses a continuous and consumable electrode for automatic arc welding of steel without using shielding gas or the like. The electrode includes a steel casing and a powder divided into an outside layer and an inside core. (See, for example, Col. 5, lines 6-7 of the cited document.) The electrode includes Fe powder, as seen, e.g., at Col. 6, line 27, Col. 7, line 11, or Col. 8, line 22. At Col. 3, line 69, Arikawa et al. disclose the presence of Fe-Ti, Fe-Zr and Fe-Al. Fe-Mn and Fe-Si also are disclosed, as seen in Examples 3 and 5 of the cited document.

However, there is no disclosure or suggestion in Arikawa regarding the presence of FeMg. Nor does the Arikawa patent disclose or suggest a core such as set forth in Applicant's Claim 10 and which further includes compacted Fe, FeMg, and FeSi, as specified in instant Claim 11.

Therefore, the Arikawa does not remedy the deficiencies of the Ogawa patent. Therefore, the combination of the Ogawa and Arikawa patents cited in the Office Action does not disclose each every element of Claim 11, as required to make a prima facie case of obviousness under 35 U.S.C. 103(a).

Furthermore, one of ordinary skill in the art, at the time the invention was made, would have found no motivation to combine the teachings of Arikawa with those of Ogawa, as stated in the Office Action.

For instance, the Ogawa patent discloses a flux cored wire suitable for welding under gas shielding, as seen at Col. 5, lines 22-24 of the document. One of ordinary skill in the art, at the time the invention was made, would have had no reason or incentive to combine its teachings with those of Arikawa, which are directed to an arc welding electrode for use in the absence of a shielding gas. Nor would one of ordinary skill in the art had found any suggestion or had a reason or incentive for combining the Ogawa patent teaching a flux cored welding electrode having high nitrogen content, with

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Arikawa, which is concerned with the negative effects of nitrogen and recommending denitrodizing agents, as seen, for instance, at Col. 3, lines 50-75 of the document.

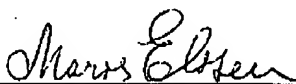
Given that the disclosures of Ogawa and Arikawa address widely different problems and widely different welding applications, the combination of these cited patents also does not explicitly provide a reasonable expectation of success, determined from the position of one of ordinary skill in the art at the time the invention was made.

Therefore, the Patent Office has failed to establish a prima facie case of obviousness and Claim 11 meets the requirements of 35 U.S.C. 103(a) over the Ogawa patent in view of the Arikawa patent.

Applicants believe that the present application is in condition for allowance. A Notice of Allowance is respectfully solicited. Should any questions arise, the Examiner is encouraged to contact the undersigned.

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